REMARKS

Claims 6 and 8-13 are pending, claim 7 is canceled without prejudice or disclaimer, and claims 6 and 8-10 are amended hereby.

1. **Request of Withdrawal of Finality of Office Action**

The Examiner is requested to withdraw the finality of the Office Action. More specifically, second or subsequent actions on the merits should be made final except when applicant's amendment necessitates new grounds of rejection. The prior amendment did not necessitate the new grounds of rejection raised by the Examiner. More specifically, the prior amendment amended dependent claims 9 and 10 to correct formal matters. These amendments did not necessitate the new grounds of rejection raised by the Examiner in the present Office Action. Accordingly, it is respectfully submitted that the finality of the Office Action is improper.

2. **Response to Rejections**

Claims 6 and 13 were rejected under 35 USC § 102(e) as being anticipated by Ito et al. (U. S. Patent No. 5,808,348). Favorable reconsideration of this rejection is respectfully requested in view of the amendments made herein.

Claim 6 has been amended to incorporate the features of claim 7. Accordingly, the rejection is rendered moot.

Claims 7-10 were rejected under 35 USC §103(a) as being unpatentable over Ito et al. in view of Hause et al. Favorable reconsideration of this rejection is earnestly solicited.

Ito et al. discloses a process of introducing N atoms into the gate oxide film as a result of the annealing process conducted in an NH_3 atmosphere while using the gate electrode as a mask.

According to the process of Ito et al., not only N atoms but also H atoms are introduced in the gate oxide film in a large amount, and electron traps are formed in the gate oxide film as a result of the H atoms thus incorporated therein. Thus, in order to eliminate the H atoms, Ito et al uses a re-oxidizing process, while such re-oxidizing process induces diffusion in the N atoms thus introduced away from the interface between the gate oxide film and the substrate. As a result of the diffusion, the semiconductor device of Ito et al. cannot avoid the problem of hot-carrier trapping in the gate oxide film and associated variation of the threshold characteristic.

Contrary to Ito et al., the present invention uses an ion implantation process as set forth in amended claim 10 or a thermal annealing process conducted in an atmosphere containing N and O as set forth in amended claim 6.

According to the process of the present invention, the nitrogen atoms are introduced preferentially at the interface between the gate oxide film and the substrate, in which position the mechanism of eliminating hot-carrier trapping in the gate oxide film works most effectively.

In addition, the process of the present invention has an additional advantageous feature of elimination of additional oxidizing process contrary to the process of Ito et al.

Hause et al. is applied by the Examiner for teaching introduction of N atoms by thermal annealing processing in nitrogen or nitrogen and oxide atmosphere at 800°C and 900°C. However, Hause et al. fails to provide the teachings which Ito et al. lacks, as discussed above.

Furthermore, Hause et al. would not have motivated one of ordinary skill in the art to have modified Ito et al. as asserted by the Examiner. The present invention introduces N atoms into the gate oxide film while using the gate electrode pattern as a mask. In Hause et al., there is no gate oxide film exposed to allow the introduction of nitrogen atoms into the gate oxide film while using the gate electrode pattern as a mask.

Claims 11 and 12 were rejected under 35 USC § 103(a) as being unpatentable over Ito et al. in view of Hause et al. and further in view of Soleimani et al. Favorable reconsideration of this rejection is respectfully requested.

Soleimani et al. is applied by the Examiner for its disclosure directed to ion implantation. However, Soleimani et al. fails to provide the teachings which Hause et al. and Ito et al. lack. Thus, the combination of art fails to teach or suggest the presently claimed invention.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicant would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicant's undersigned attorney.

In the event that this paper is not timely filed, applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,
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